maximum at the wafer center, and that the axial stress gradient in the radial direction becomes larger with increase in the wafer diameter-to-height ratio. This result is a topic of concern to many experimentors, References (a), (b), and (c), and will be discussed in more detail in the section Summary and Conclusions.

Several 2S aluminum wafers of various shapes were compressed to check the validity of the one-dimensional analysis. The non-linear stress-strain curve of 2S aluminum affords an opportunity to observe the usefulness of the Ludwig equation (63). The applied force-displacement data were arranged in the usual way, and are presented in Figure 19. The analytical results are lower than that dictated by experiments, which is as expected, since the one-dimensional analysis ignores the force required to overcome the enevitable friction existing at the wafer-anvil interface. The axial stress distributions are found from equation (66) and are shown in Figure 20. The axial stress corresponding to rigid, perfectly lubricated anvils is given in equation (71), and is shown in Figure 20 for comparison. Additional information on the one-dimensional analysis is given in Reference (1). The experimental data used in the construction of the aforemention figures has been documented, and is shown in the following seven tables.

The agreement achieved between experimental data and the two-dimensional analysis is deemed good, and the resulting stress gradients are considered to be defensible in view of